



Europäisches Patentamt
European Patent Office
Office européen des brevets



Publication number: **0 426 637 A3**

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: **90870174.1**

(51) Int. Cl.⁵: **C08F 4/603, C08F 10/00**

(22) Date of filing: **09.10.90**

(30) Priority: **30.10.89 US 419046**

(43) Date of publication of application:
08.05.91 Bulletin 91/19

(94) Designated Contracting States:
AT BE CH DE DK ES FR GB GR IT LI LU NL SE

(96) Date of deferred publication of the search report:
07.08.91 Bulletin 91/32

(71) Applicant: **FINA TECHNOLOGY, INC.**
8350 North Central Expressway
Dallas, Texas 75206(US)

(72) Inventor: **Ewen, John A.**
16615 Kentwood Avenue
Houston, Texas 77058(US)
Inventor: **Elder, Michael J.**
706 Stoneledge
Friendswood, Texas 77546(US)

(74) Representative: **Leyder, Francis et al**
c/o Fina Research S.A. Zone Industrielle C
B-7181 Feluy(BE)

(54) **Preparation of metallocene catalysts for polymerization of olefins.**

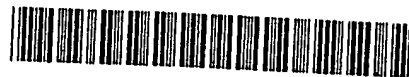
(57) This invention uses a new method of producing ionic metallocene compounds. These compounds are useful as catalysts for polymerization of olefins, primarily propylene. This method uses an ionizing agent which ionizes the neutral metallocene compound. The ionizing ionic compound does not contain an active proton and contains a carbonium, oxonium or sulfonium cation. The anion of the ionizing ionic compound is not coordinated or is only loosely coordinated to the metallocene cation and is chemically unreactive with the metallocene cation. One such compound is triphenylcarbenium tetrakis-(pentafluorophenyl)boronate.

The process of making catalysts with this invention produces catalysts having high activity and does not produce by-products which can inhibit catalyst activity. This new synthesis is a clean reaction which does not produce a Lewis base. The process generates active catalysts by removing a methyl anion from a group IV metallocene derivative.

EP 0 426 637 A3



Europäisches Patentamt
European Patent Office
Office européen des brevets



Publication number: **0 426 637 A3**

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: 90870174.1

(51) Int. Cl.⁵: C08F 4/603, C08F 10/00

(22) Date of filing: 09.10.90

(30) Priority: 30.10.89 US 419046

(43) Date of publication of application:
08.05.91 Bulletin 91/19

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR IT LI LU NL SE

(88) Date of deferred publication of the search report:
07.08.91 Bulletin 91/32

(71) Applicant: FINA TECHNOLOGY, INC.
8350 North Central Expressway
Dallas, Texas 75206(US)

(72) Inventor: Ewen, John A.
16615 Kentwood Avenue
Houston, Texas 77058(US)
Inventor: Elder, Michael J.
706 Stoneledge
Friendswood, Texas 77546(US)

(74) Representative: Leyder, Francis et al
c/o Fina Research S.A. Zone Industrielle C
B-7181 Feluy(BE)

(54) Preparation of metallocene catalysts for polymerization of olefins.

(57) This invention uses a new method of producing ionic metallocene compounds. These compounds are useful as catalysts for polymerization of olefins, primarily propylene. This method uses an ionizing agent which ionizes the neutral metallocene compound. The ionizing ionic compound does not contain an active proton and contains a carbonium, oxonium or sulfonium cation. The anion of the ionizing ionic compound is not coordinated or is only loosely coordinated to the metallocene cation and is chemically unreactive with the metallocene cation. One such compound is triphenylcarbenium tetrakis-(pentafluorophenyl)boronate.

The process of making catalysts with this invention produces catalysts having high activity and does not produce by-products which can inhibit catalyst activity. This new synthesis is a clean reaction which does not produce a Lewis base. The process generates active catalysts by removing a methyl anion from a group IV metallocene derivative.

EP 0 426 637 A3



European
Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 90 87 0174

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
D,A	EP-A-0 277 003 (EXXON) * Page 6, lines 42-59 * -----	1	C 08 F 4/76 C 08 F 4/603 C 08 F 10/00
D,A	EP-A-0 277 004 (EXXON) * Page 6, line 61 - page 7, line 7 * -----	1	
D,A	JOURNAL OF AMERICAN CHEMICAL SOCIETY, vol. 108, 1986, pages 7410-7411, American Chemical Society; R.F. JORDAN et al.: "Ethylene polymerization by a cationic dicyclopentadienylzirconium(IV) alkyl complex" -----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.6)
			C 08 F
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of search 08 May 91	Examiner DE ROECK R.G.
<div>CATEGORY OF CITED DOCUMENTS</div> <div>X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention</div> <div>E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons &: member of the same patent family, corresponding document</div>			